sized in the paper. When physicians generally carry out such examinations, many persons will be spared years of physical discomfort and debilitating nervous strain. I am certain there will then be less and less prescribing of such devices as arch supports and corrective shoes by shoe clerks, quite as often with detrimental as with beneficial results.

The more difficult corrective problems must be referred to the orthopedic expert, but every pediatrician can give intelligent attention to the child's bed, to the manner in which he stands, sits and walks, and to the clothing (especially the socks and shoes) which he wears. A firm flat bed maintains balanced body muscles during sleep. Correct habits of standing, walking, and sitting can be taught by the same methods which produce a serviceable working knowledge of arithmetic. The child who sits on a chair or school seat that is too high or too deep has his shoulder girdle pulled forward by the unsupported weight of his legs. Shoes and socks that are badly fitted force the child into habits of standing and walking that unbalance the entire system of skeletal muscles.

The well thought-out, practical measurements outlined in the paper will detect deviations from the best obtainable state of body mechanics. Further study will reveal whether heredity or congenital defects must be treated, or whether environment alone must be changed. The purpose of environmental control is to make the best possible use of the human material, which it is our great privilege to care for and mould toward perfection.

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Rodney F. Atsatt, M. D. (1421 State Street, Santa Barbara).—The importance of having the pediatrician think of the posture mechanics of his small patient cannot too strongly be emphasized. All orthopedic men are continually faced with and chagrined by children with bad structural postures from scoliosis, and by what is even more lamentable, bad functional postures. I say chagrined, because many scolioses are caused by easily remediable short legs or asymmetrical pelves, and most functionally poor postures are the results of faulty habits and neglected muscle tone.

Children are the most plastic material we have to work with. A sympathetic and understanding doctor, and an efficient and wide-awake physical therapist can so enlist the interest of the child that even early in life corrective exercises may be given and enjoyed, to the extent that complete coöperation is possible in the abolishment of a prominent abdomen and marked lordosis—the signs of bad habits and poor muscle tone.

Similarly a few simple measurements, coupled with a truly comprehensive inspection of the back which actually sees and recognizes a scoliosis, will often make possible an immediate correction of the scoliosis by means of a simple heel lift to equalize the distortion in legs or pelvis.

BIRTHMARKS*

OBSERVATIONS ON TREATMENT

By Charles R. Caskey, M. D.
Los Angeles

Discussion *by L. R. Taussig, M.D., San Francisco; H. O. Barnes, M.D., Los Angeles; Moses Scholtz, M.D., Los Angeles.*

In this short article only the commoner types of nevi can be discussed. These will include some vascular and nonvascular types. The simpler type of vascular nevi is the port wine mark, or nevus flammeus. This is the smooth, non-elevated mark of red or purplish color. It may or may not fade upon pressure. Those that do not fade on pressure are the more difficult to treat. In many instances the nevus flammeus is the least satisfactory to treat, as far as cosmetic results are concerned; for so often it is this type of mark that occurs on the face.

PORT WINE NEVI

There are various ways of treating port wine nevi, the object of all being a sclerosis of the blood vessels. Carbon dioxide snow for small lesions is sometimes quite satisfactory, but in large nevi not fading on pressure repeated blistering doses are required, which may in the end produce a white atrophic appearance. Some improvement can be effected with electrolysis and the dessication current, but the results are a mottling of the skin. I have tried sodium morrhuate intradermally and subdermally without, however, producing satisfactory results. The water-cooled ultraviolet light, in my hands, has not brought about as good results as has been claimed by some. I have not used the air-cooled ultraviolet for this purpose, as advocated by Andrews and others. Over large areas it is best to use a ball or cylinder-shaped piece of snow, employing a rolling motion over the same area repeatedly, without much pressure for several seconds, until the desired reaction is produced. This will not produce a sharply outlined reaction; but with proper management it will effect a fading reaction into the borders. This is desirable in treating large port wine marks. I have had little experience in treating this kind of birthmark with radium. I do not feel that the margin between good cosmetic results and later sequelae is great enough to justify the use of this remedy for the average nevus flammeus.

NEVUS VASCULOSUS

The strawberry mark, or nevus vasculosus, is red to purple in color and elevated above the surface of the skin. They are most often irregular in shape and have a berry or lobulated appearance. This type of birthmark is not so difficult to eradicate, in many instances, if favorably located and it is not complicated with cavernous extensions. Carbon dioxide snow or electrodessication can be used where cosmetic results are not so important. Repeated, gentle treatments are better than severe ones, which leave the skin thin and atrophic. Very good results with beta rays of radium in suberythema doses will sometimes give good effects. Radium treatments should be cautiously repeated. Better results may be obtained by waiting, especially if improvement is evident. A mother will usually coöperate in this respect, if you will tell her at the first visit that it will take time to treat the case. The combination of carbon dioxide snow and radium in these cases should, if used at all, be employed with double caution.

CAVERNOUS ANGIOMATA

In the cavernous angiomata, the deep vessels, especially the veins, are involved. The overlying skin may be almost normal, but it is not infrequently the site of a strawberry mark. These marks may occur on any part of the body, but

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those most difficult to treat are found on the face. Carbon dioxide snow may flatten the overlying strawberry mark; but if used too strenuously, it may so damage the surface of the skin that the proper treatment of the deeper lesion is hindered. The gamma rays of radium are the best agent with which to attack the deeper lesion with least likelihood of injury to the surface of the skin. The great temptation is to give treatments too often, for, as a rule, these nevi will continue to grow somewhat before the sclerosing effect of radium takes place. Quicker results must not be sacrificed for final cosmetic effect, for future sequellae may cause more grief than the nevus itself. If treatments must be frequent, they should be in such fractional dosage that marked atrophy of the skin is avoided. It is not much credit to radium or the operator to flatten a cavernous angioma, and later have atrophy and telangiectasia staring you in the face. More recently it has been suggested that some of the sclerosing solutions used in treating varicose veins might be used to sclerose the blood sinuses in this type of birthmark. So far only one of my cases with cavernous nevus has been so located that I could use this method. This nevus is on the back. I am using quinine hydrochloride and urethane. This case is too recent to report at this time. I have not had the temerity to use sclerosing injections about the face of a child, after having seen several cases of very painful and long-continued dermatitis and ulceration from injections of varicose veins. I am unwilling to try this form of treatment except in very favorably located cavernous nevi. The slower and safer treatment with radium is preferable until a more successful solution and technique are perfected.

SPIDER NEVUS

Nevus araneus, or spider nevus, is a superficial vascular nevus, the center of which often shows a vascular punctum from which the smaller vessels radiate. These small nevi can be destroyed by trichloracetic acid, carbon dioxide snow, electrolysis, electrodessication, or the tip of a very fine cautery. The acid, though not painful, is likely to leave a small scar. Carbon dioxide snow trimmed down to a pencil point is useful in some cases, but the action is likely to cover more tissue than intended and produce scarring or depigmentation. Electrolysis is a good method, but it is not so well borne in children in whom we see most of the nevi of this kind. I think the best method in most instances is the electrodessication needle. A sewing needle should be used, and a very fine spark turned on momentarily after the center is entered. For the radiating vessels superficial surface sparking is usually sufficient.

LYMPHANGIOMA CIRCUMSCRIPTUM

Lymphangioma circumscriptum is a form of nevus characterized by deep-seated vesicles due to a dilated and cystic condition of the lympatic vessels. They are usually yellow or straw colored. Sometimes the surface is verrucous. Cures have been reported in these cases by radiation, but I have not found them radiosensitive. Sometime ago I observed the case of a boy with this type of nevus on the scrotum, pubis and thigh. X-ray had been used a few years before. X-ray telangiectasia and atrophy were present, and also the nevus. Radiation had been used without any protection to the testicle, which was atrophic. Clearly, the wrong modality had been used. The lesions were greatly improved with electrodessication. Carbon dioxide snow, electrolysis, or excision, are methods which may be used in some cases depending upon their size and location.

MOLES

The more frequently encountered nonvascular nevi are the moles. These may be flat and hairy or nonhairy, or they may be raised and either hairy or nonhairy. Flat, nonhairy, pigmented lesions can be greatly improved by treatment with carbon dioxide snow or the electrodessication needle. Superficial treatments over a period of time give better cosmetic results with either method. In some cases better cosmetic results can be obtained by surgical excision. It is not necessary to remove any more tissue this way than with the cutting current, and the advantage is that the wound can be sutured and so have only a narrow linear scar, instead of a broad, ugly one, I think that the fear that these nevi will become malignant is overemphasized. Hairy moles seldom become malignant. The black or dark brown ones seldom do, unless they are stimulated by irritation or improper treatment. Sometime ago I saw a large mole on the face which was showing definite signs of malignancy due to radium treatment. Radiation has no place in the treatment of pigmented nevi.

Hairy moles, either flat or raised, should first have the hairs removed by electrolysis before other methods are used, unless the hairs are very fine and numerous. Snow or electrodessication, in dosage sufficient to improve the nevus, will not destroy large hairs, but will render the skin sclerotic so that electrolysis is almost impossible if attempted later.

TIME REQUIRED AND RESULTS TO BE EXPECTED FROM TREATMENT

The most favorable time to treat nevi, particularly the vascular type, is soon after birth. Young cells are more easily affected than older cells. Recent marks are more responsive to carbon dioxide snow and to radium. Many marks have a tendency to grow as time goes on. The larger and older the lesion becomes, the poorer will be the cosmetic result. Treatment is more easily applied the first months of life, and there is also then less sensitiveness to pain.

Of the vascular nevi, the strawberry mark is more responsive to treatment. A few weeks to a few months is sometimes all the time needed for their treatment. The cavernous type of nevi require a longer period of treatment and observation. To get the most desirable results with radium, the treatment had best be carried out over a long period of time. Some of these lesions require two

to five years to get satisfactory results. At first the child should be observed every few weeks, while later observations can be from one or more months apart. The treatment with radium should be kept below erythema doses, and treatment deferred if there is continued improvement on observation. This sometimes requires judgment and persuasive tactics to keep the parents and friends satisfied and hopeful.

Port wine marks are not so likely to grow after birth and there is less urgency to begin their treatment early. The same is true of pigmented hairy and nonhairy birthmarks. However, in many instances, if these marks are treated early in life, there are more regenerative processes brought to play to repair destructive methods necessary for their cure.

As to what should be expected as fair cosmetic results will depend upon the type, size, and location of the birthmark under treatment. This should be discussed at the first visit and repeated from time to time, for parents are likely to expect too much as a final cosmetic result. They should be informed that abnormal skin is not replaced with normal skin, and all that can be hoped for is a pale smooth scar in vascular nevi, and a depigmented area for the pigmented types of nevi. Plastic surgery may be a great aid in getting good cosmetic results. This should be kept in mind, and radiation or other treatment used accordingly.

EQUIPMENT NECESSARY AND BEST SUITED FOR TREATMENT OF NEVI

Carbon dioxide snow, commercially supplied in tanks, is to be preferred to "dry ice." I have tried the latter several times when my tank became empty, but found the reaction too harsh.

A high frequency machine, with a finely adjustable spark gap, should be selected. The current best suited and less painful for skin work is one which will turn the skin white rather than black when the needle is applied. Many physicians get poor results in treating skin lesions with their machines and never know the reason. I rarely ever use other than the Oudin current. Where destruction is indicated, I think that the actual cautery will, in most instances, give better results than the cutting current or the bipolar current. Cautery effect can be varied a great deal by varying the heat of the electrode. In treating hairy nevi one should have an electrolysis outfit. I have tried various types, but prefer a battery set. It is less painful and produces less scarring when a low milliamperage is used. For the successful treatment of vascular and cavernous marks, radium is necessary. A fairly large flat plaque is indispensable. There are instances where needles or seeds can be used to advantage. One should be thoroughly familiar with the uses and dosage of whatever type of radium applicator he uses. Much caution is necessary in the application of radium.

SUMMARY

1. Treatment should be begun in certain types of birthmarks as soon as they are observed. Strawberry marks and cavernous nevi may enlarge rapidly, thereby becoming more difficult to treat as time elapses.

2. Parents should be advised as to which treatment is indicated, and the approximate length of time necessary for treatment and observation. They should also be advised as to what should constitute reasonably good results for the type of mark under treatment.

3. Proper instruments, skill in their use, patience, and judgment are necessary for good results in the treatment of birthmarks.

1930 Wilshire Boulevard.

DISCUSSION

L. R. TAUSSIG, M. D. (384 Post Street, San Francisco).—Doctor Caskey has very properly indicated that no one form of treatment should be considered as adapted to all types of nevi. I have had no experience with the use of sclerosing solutions in the treatment of vascular lesions, as reported by Andrews. This type of treatment may offer certain advantages, although it will be necessary to learn its limitations. In the larger cavernous hemangiomas, I have found that burying gold seeds of radon, combined with moderate surface radiation, hastens the cure and minimizes the amount of radiodermatitis very markedly. In the treatment of small non-vascular nevi, I employ the electrocautery or electrodesiccation, but prefer to accomplish the result with one treatment rather than to make use of repeated treatments. As Doctor Caskey states, surgical excision produces the best result in some of these lesions. There is no question but that electrolysis should be employed to remove the hair of a hairy nevus, before using any form of cautery. This treatment alone may eradicate the entire nevus. It is wise to warn the patients or relatives that removal of a birthmark necessarily will leave some scar.

H. O. BAMES, M. D. (1134 Roosevelt Building, Los Angeles).—Unless we can promise a definite improvement with reasonable assurance, it would be better to leave nevi alone.

Destruction en masse always results in replacement by scar tissue which, because of its permanent whiteness, may be as definite a cosmetic disfigurement as the former highly colored one. It may even be worse, because of scar tissue retraction or keloidal overgrowth.

For this reason carbon dioxid snow or trichloracetic acid, also diathermy, x-ray and radium, while useful in exceptional cases are distinctly not remedies of choice. The best remedy is one which will destroy the abnormal constituent, yet preserve the normal tissue.

In the pigmented nevi of small dimensions this is accomplished by fulguration with the Oudin current; scars are prevented by searing only to a depth no greater than the depth of the mole itself.

In the capillary nevi it calls for electrolysis with the galvanic current, or fulguration, destroying carefully each individual blood vessel and thus preventing scarring of the surrounding tissue.

The presence of blood vessels which are large enough to permit being entered with a needle and sclerosing fluid brings the whole nevus within the classification of where abnormal tissue exceeds normal in amount. In all such cases, and this also includes the larger moles, clean surgical excision of the entire mass is the remedy of choice.

The resection must be planned with a view to linear closure blending with normal skin lines. If the defect is too large to permit closure by direct approximation, it is to be covered with a full thickness graft; and in choosing the source of this graft, we must be mind-

ful not to create another cosmetic defect there. While the present vogue of sun worship limits greatly the available area of supply, it has also helped to alleviate our fear that the transplant might not ultimately blend in color, for apparently all parts tan.

To conclude, superficial nevi in punctate, stellate or diffuse form are best treated by dermatological methods, chiefly electrolysis or fulguration. Nevi which encompass the whole skin, vascular or pigmentary, and all those which contain larger blood vessels, are best treated by plastic surgery.

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Moses Scholtz, M. D. (1930 Wilshire Boulevard, Los Angeles).—Birthmarks are a subject of considerable clinical interest, as they are a source of great anxiety to the parents. The speaker is to be commended for a conservative and practical presentation of the subject.

I heartily endorse two points emphasized in the paper. The first, that nevi can and should be treated as early as discovered. Many parents are afraid to treat birthmarks early in life, and prefer to wait unti the infant gets older. As a matter of fact, infancy is the best age to treat nevi, since the cells and tissues of a younger individual are much more radiosensitive, and tissue repair in a younger patient, from a cosmetic point of view, is much more promising.

The second point is that the certainty of obtaining good cosmetic results grows in direct proportion to the length of duration of treatment. In other words, mild, cautious and well-spaced treatments are much more preferable than heroic, intensive and closely set applications.

The potentiality of cure and the facility of the technique varies greatly with different types of nevi. Of four common types—nevus flammeus, port wine, spider, pigmented and cavernous strawberry type—the first, port-wine type, which often covers extensive areas, offers the least satisfactory cosmetic results. Irrespective of the method applied—quartz light, pressure applications, snow or electrodesiccation—it is well-nigh impossible to obtain a uniform discoloration. Mottling effect is fairly certain to result.

The small spider-type nevus is easily improved and obliterated by cautious application, to the center of the lesion, of trichloracetic acid, carbonic dioxid snow or electrodesiccation needle.

Pigmented nexi yield readily both to chemical snow and electrodesiccation, but one cannot be certain that the resultant scar will be cosmetically preferable to the removed mole. I personally do not encourage young females to remove pigmented moles on the face unless there are definite indications for it.

The most gratifying and promising cosmetically therapeutic field is presented by the strawberry type of nevus, which commonly is also the most disfiguring. In these cases results are often spectacular. Only two methods of treatment are applicable in strawberry-type nevus—chemical snow and radium. Snow, however, is applicable only in supercial and flat lesions. In cavernous elevated nevi, snow is contraindicated, as a deep scarring is sure to result; besides, the necessity of blistering to obtain the deeper effect adds another objection to surgical dressings and possibility of infection.

It is in these cases that radium reigns supreme and gives perfect cosmetic results. In lesions not exceeding its size, a ten-milligram radium plaque is sufficient. It is important to start with obliteration of the deeper layers of cavernous nevi by employing gamma rays, with appropriate filtration of one to three or more milligrams brass filters. No standardized technique as to the number of hours or thickness of filters can be given, as each and every case requires individual figuring. Variations of radiosensitivity of individual skins comes in strongly as a factor in therapeutic technique.

After the deeper layers of cavernous nevi are obliterated and the lesion has flattened down, the more superficial blood vessels are treated with beta radium rays, with correspondingly lighter filtration and shorter exposures. The remaining superficial telangiectasis, particularly at the margins of the nevus, can be obliterated by electrodesiccation or touching up with trichloracetic acid. Snow should not be used on skin subjected to prolonged and repeated radium applications.

The duration of treatment in these cases ranges from six months to two years. The treatments should be spaced farther apart as the case advances. Starting from weekly or biweekly treatments, the intervals should be increased gradually to one, four, and six weeks. More haste less speed, is a therapeutic motto to be remembered in these cases.

KETOSIS—RELATION OF THE PITUITARY TO SEX DIFFERENCES THEREIN*

By Harry J. Deuel, Jr., Ph.D.
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Discussion *by C. H. Thienes, M.D., Los Angeles; Howard F. West, M.D., Los Angeles; Emil Krahulik, M.D., Los Angeles.*

It was first shown by Deuel and Gulick [1] that women excrete larger amounts of acetone bodies in the urine during fasting than do men. Thus the ratios of the average excretion of acetone bodies, as determined from eleven experiments on five different women and twenty-two experiments on five different men, were approximately ten on the first fast day, six on the second, four on the third, and two and five-tenths on the fourth. In addition, much greater acidosis obtained in the women examined than in the men. The CO_2 combining power in one experiment on a female subject fell from a normal level to twenty-five volumes per cent of CO_2 on the fourth fast day, while in the male subject the reduction was only to approximately forty-five volumes per cent following a similar period of fasting. It is uncertain from these data whether the acetone body excretion would ultimately reach an identical level in the men and women following a prolonged fast. The closer agreement between the levels in the two sexes on the fourth day is to be attributed largely to the fact that several of the women in whom the ketonuria was the most severe had been forced to abandon the experiment by that time, while all of the male subjects had continued through this period. Therefore, the comparison of excretions on the fourth day is between the average of the experiments on those women in which the ketosis had been least severe and the mean of all the experiments on men.

SEX DIFFERENCE IN KETOSIS IN ANIMALS

In order to determine whether this sex difference in ketosis could be demonstrated in other species, Butts and Deuel [2] administered sodium aceto-acetate to fasting male and female rats and guinea-pigs, and noted the urinary acetone body excretion. Although these animals do not normally develop an appreciable ketonuria during fasting, a

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